

SHMIDT, Ye.V., prof.; ALEKSANDROVA, L.I.

Neuropathology in Bulgaria and Hungary. Vest. AMN SSSR 15 no. 5:67-  
71 '60. (MIRA 13:9)

(BULGARIA—NERVOUS SYSTEM—DISEASES)

(HUNGARY—NERVOUS SYSTEM—DISEASES)

SHMIDT, Ye.V., prof.

Review by P.G.Sniakin's book "Functional mobility method in experiments and clinical practice." Vest.AMN SSSR 15 no.5:89-91 '60.  
(MIRA 14:3)

(SENSES AND SENSATION)

(SNIAKIN, P.G.)

SHMIDI, Ye. V., prof. (Moskva)

New concepts in the mechanisms underlying disorders of cerebral  
circulation. Klin.med. 38 no.9:12-18 3 '60. (MIRA 13:11)

1. Iz Instituta nevrologii AMN SSSR.  
(BRAIN-BLOOD SUPPLY)

SHMIDT, Ye.V.; ALEKSANDROVA, L.I.; GALUZO, N.V.; SUKHOVSKAYA, N.A.

Thermal receptor of the skin (functional mobility) in patients with  
vascular diseases of the brain. Zhur. nerv. i psikh. 60 no. 6:665-671  
'60. (MIRA 13:12)

1. Institut nevrologii (dir. - prof. N.V. Konovalov) AMN SSSR,  
Moskva.

(BRAIN—BLOOD VESSELS)

(SKIN—INNERVATION)

SHMIDT, Ye.V.; ALEKSANDROVA, L.I. (Moskva)

Neurology in the Hungarian People's Republic and in the Bulgarian  
People's Republic. Zhur.nevr.i psikh 60 no.8:1049-1053 '60.

(MIRA 13:9)

(HUNGARY—NEUROLOGY)

(BULGARIA—NEUROLOGY)

KONOVALOV, N.V.; SHMIDT, Ye.V.

Status and problems of scientific research in the field of vascular lesions of the nervous system and methods for their prevention.

Zhur. nerv. i psikh. 60 no. 12:1557-1569 '60. (MIRA 14:4)

1. Institut neurologii AMN SSSR, Moskva.  
(BRAIN—BLOOD SUPPLY)

SHMIDT, Ye.V.; YARULLIN, Kh.Kh.

"Vascular reactivity in diseases of the central nervous system"  
by J. Poilici. Reviewed by E.V. Schmidt, Kh.Kh. Yarullin.  
Zhur. nerv. i psikh. 60 no. 12:1680-1682 '60. (MIRA 14:4)  
(CARDIOVASCULAR SYSTEM) (NERVOUS SYSTEM—DISEASES)  
(POILICI, J.)

SHMIDT, Ye.V., red.; TKACHEV, R.A., red.; KUKUYEV, L.A., red.;  
MIRONOVA, A.M., tekhn. red.

[Problems in the clinical aspects and pathophysiology of  
aphasia]Institut nevrologii. Voprosy kliniki i patofizio-  
logii afazii. Pod red. E.V.Shmidta i R.A.Tkacheva. Po-  
skva, Medgiz, 1961. 175 p. (MIRA 15:10)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut nevro-  
logii.

(APHASIA)



SHMIDT, Ye.V.; DZHIBLADZE, D.N.

Thrombosis of the extracranial and intracranial sections of  
the internal carotid artery. Nauch. inform. Otd. nauch. med.  
inform. AMN SSSR no.1:54-55 '61 (MIRA 16:11)

1. Institut nevrologii (direktor - deystvitel'nyy chlen AMN  
SSSR prof. N.V. Konovalov) AMN SSSR, Moskva.

\*

SHMIDT, Ye.V., prof. (Moskva)

"Hepatocerebral dystrophy" by N.V.Konovalev. Reviewed by E.V.Shmidt.  
Vrach.delo no.6:153-154 Je '61. (MIRA 15:1)

1. Chlen-korrespondent AMN SSSR.  
(HEPATOLENTICULAR DEGENERATION) (KONOVALOV, N.V.)

SHMIDT, Ye.V., prof.

Award of the Lenin Prize for the monograph of Professor N.V.Konovalov.  
Sov. med. 25 no.9:150-151 S '61. (MIRA 15:1)

1. Chlen-korrespondent AMN SSSR.  
(LENIN PRIZES) (HEPATOLENTICULAR DEGENERATION)

SHMIDT, Ye.V.

Clinical aspects and treatment of stenosis and thrombosis of the  
carotid arteries. Vest. AMN SSSR 16 no.10:25-34 '61. (MIRA 14:11)

(CAROTID ARTERY--DISEASES)

SHMIDT, Ye.V., inzh.

Photoelectric relay for controlling outdoor lighting. Prom.  
energ. 17 no.7:27-28 J1 '62. (MIRA 15:7)  
(Electric relays) (Electric lighting)

SHMIDT, Ye.V.

Some problems in clinical aspects and treatment of occluding  
lesions of the extracranial segment of the carotid arteries.

Zhur. nevr. i psikh. 62 no.1:15-23 '62.

(MIRA 15:4)

1. Institut nevrologii (dir. - prof. N.V.Kononov) AMN SSSR, Moskva.  
(CAROTID ARTERY--DISEASES)

SHMIDT, Ye.V.; VERESHCHAGIN, N.V.; KOLTOVER, A.N.; BRAGINA, L.K.

Role of the pathological sinuosity of the carotid and vertebral arteries in disorders of cerebral circulation. Zhur.nevr.i psikh. 62 no.8:1149-1159 Ag '62. (MIRA 15:12)

1. Institut nevrologii (dir. - prof. N.V.Kononov) AMN SSSR, Moskva.

(CEREBROVASCULAR DISEASE)(VERTEBRAL ARTERY--DISEASES)  
(CAROTID ARTERY--DISEASES)

SHMIDT, YEvgeniy Vladimirovich; VEYN, A.M., red.

[Stenosis and thrombosis of the carotid arteries and disorders of the cerebral blood circulation] Stenoz i tromboz sonnykh arterii i narusheniia mozgovogo krovoobrashcheniia. Moskva, Medgiz, 1963. 319 p. (MIRA 17:4)



SHMIDT, Ye.V.; USTINOVA, Ye.Z.; DRIGO, Ye.F. (Moskva)

Cerebral insultus and coronary circulatory diseases. Klin. med.  
41 no.9:13-20 S '63. (MIRA 17:3)

1. Iz Instituta nevrologii (dir. - deystvitel'nyy chlen AMN  
SSSR prof. N.V.Konovalov) AMN SSSR.

SHMIDT, Ye.V.; D HIBLADZE, D.N.; LYUDKOVSKAYA, I.G.

Bilateral thrombosis and stenosis of the carotid arteries.  
Zhur. nevr. i psikh. 64 no.10:1433-1441 '64. (MIRA 17:11)

1. Institut nevrologii (direktor - prof. N.V. Koncvalov)  
AMN SSSR, Moskva.

BANSHCHIKOV, V.M., zasl. deyatel' nauki, prof., glav. red.; ROKHLIN, L.L., prof., zam. glav. red.; SHMIDT, Ye.V., prof., red.; KERBIKOV, O.V., prof., red.[deceased]; MYASISHCHEV, V.N., zasl. deyatel' nauki prof., red.; FELINSKAYA, N.I., prof. red.; MIKHEYEV, V.V., prof., red.; FEDOTOV, D.D., prof., red.; BABAYAN, E.M., red.; MOROZOV, G.K., doktor med. nauk, red.; SEREBRYAKOVA, Z.N., kand. med. nauk, rel.; USHAKOV, G.K., doktor med.nauk, red.; SNEZHNEVSKIY, A.V., prof., red.

[Transactions of the 4th All-Union Congress of Neuro-  
nathologists and Psychiatrists] Trudy Vsesoiuznogo s"ezda  
nevropatologov i psikhiatrov. Moskva, Vses.nauchn. med. ob-  
vo nevropatologov i psikhiatrov. Vols.1, 5-6. 1965.  
(MIRA 18:11)

1. Vsesoyuznyy s"yezd nevropatologov i psikhiatrov. 4th,  
Moscow, 1963. 2. Deystvitel'nyy chlen AMN SSSR (for Shmidt,  
Kerbikov, Snezhnevskiy).

NOVA, G.M.; NOVA, Ya.9.

synthesized 4-aminocantipyrine derivatives as potential anti-  
thrombotic agents. Izv. vys. ucheb. zav.; khim. i khim. tekhn.  
8 no.3:520-521 '65. (MIRA 18:10)

L. Tomskiy politekhnicheskyy institut imeni Kirova, kafedra  
tekhnologii organicheskogo sinteza i organicheskoy khimii.

LIMAR', T.F.; UVAROVA, K.A.; BULACHEVA, A.F.; SGYVUBM, A.S.; BEDNOVA, I.N.; MAKOVSKAYA, E.B.; SOLOMEINA, G.I.; DOLMATOV, Yu.D.; BOBYPENKO, Yu. Ya.; KOGAN, P.I.; KOVALENKO, P.N.; IVANOVA, Z.I.; FOKIN, A.Y.; KOMAROV, V.A.; SOROCKIN, I.N.; LAVYDOVA, S.M.; RAVDEL', A.A.; GORELIK, G.N.; DAUKSHAS, V.K. [Dauksas, V.]; PIKUNAYTE, L.A. [Pikunaitė, L.], SHARIPOV, A.Kh.; SHABALIN, I.I.; STEPNOVA, G.M.; SHMIDT, Ye.V., DUHOV, S.S., STRUKOV, O.G.

Scientific research papers of the members of the All-Union Mendeleev Chemical Society (brief information). Zhur. VHKU 10 no.3:350-360 '65. (MIRA 18:8)

1. Donetskii filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv (for Limar', Uvarova, Bulacheva). 2. Ural'skiy nauchno-issledovatel'skiy khimicheskii institut (for Shubin, Fednova, Makovskaya, Solomeina). 3. Chelyabinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektного instituta mineral'nykh pigmentov (Dolmatov, Bobyrenko). 4. Rostovskiy-na-Donu universitet (for Kogan, Kovalenko, Ivanova). 5. Leningradskiy tekhnologicheskii institut imeni Lensovetu i Institut mineral'nykh pigmentov (for Ravdel', Gorelik). 6. Vil'nyuskiy gosudarstvennyy universitet imeni Kpsukasa (for Dauksas, Pikunayte). Nauchno-issledovatel'skiy institut neftekhimicheskikh proizvodstv (for Sharipov, Shabalin). 8. Tomskiy politekhnicheskii institut imeni Kirova (for Stepnova, Shmidt).

Yu. A. Shmidt

USSR.

✓ State of silicic acid in solution and methods for its colorimetric determination. M. M. Firyatko and Yu. A. Shmidt. *Bull. Acad. Sci. U.S.S.R., Div. Chem.* 1953, 546-50 (Engl. translation).—See C.A. 48, 4369b.  
H. L. H.

SHIMIDT, Yu. A.

Chemical Abst.

Vol. 48 No. 8

Apr. 25, 1954

Glass, Clay Products, Refractories,  
and Enamels Metals

④ *Shmidt*  
Reaction of vitreous sodium silicates and sodium aluminosilicates with aqueous solutions. I. Reaction of vitreous sodium silicates with water and with hydrochloric acid solutions. / S. K. Dubrovno and Yu. A. Shimidt (Inst. Silicate Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R. Otdel. Khim. Nauk* 1953, 597-600.—The reaction with water takes place in 2 stages: (1) an exchange of Na ions from the glass with H ions from the soln., resulting in the formation at the surface of the glass of a residual layer of silicic acid which, with the silica of the original glass, forms a protective layer; and (2) reaction of the protective layer with the resulting alk. soln. which causes dissolution of silicic acid from the surface. The reaction with HCl, as compared with that with water, is characterized by SiO<sub>2</sub> going into soln. much later than Na<sub>2</sub>O. A plot of the log of the no. of components going into soln. against the mol. percentage of silica in the glass gives smooth curves (or straight lines in the case of the action of acid) with no essential deviations for compds. corresponding to the invariant points on the constitutional diagram Na<sub>2</sub>O-SiO<sub>2</sub>.

Mary Alexander

9-3-54

Chemical Abst.  
Vol. 48 No; 8  
Apr. 25, 1954  
Analytical Chemistry

USSR .

*Onits, I. D. for*  
State of silicic acid in solution and methods for its colorimetric determination. *M. M. Pirvatko and Yu. A. Shmidt* (Inst. Silicate Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 607-14. —The polymerization of  $\text{SiO}_2$  which takes place in acid solns. lowers the results of its colorimetric detn. with  $\text{NH}_4\text{molybdate}$ . Equil. between the mol. disperse and polymer forms is established in relation to the acidity of the medium. The presence of Na, Ca, or Al chlorides speeds up the attainment of equil. but does not affect its relative position. Where  $\text{SiO}_2$  exists in soln. in its polymer form, preliminary treatment to bring it into the mol.-disperse form is necessary before it can be detd. colorimetrically. This can be achieved by heating the soln. and adding  $\text{NaOH}$ .  $\text{NaF}$  can be added to the acidic soln. at room temp.

Marv Alexander



USSR 23

Reaction of vitreous silicates and sodium aluminosilicates with aqueous solutions. II. Reaction of sodium disilicate with aqueous solutions. Yu. A. Slunkin. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1954, 181 (Engl. translation).—See C.A. 48, 13187c. III. The influence of silica and alumina content in sodium silicate on their destruction in acids. S. K. Dubrovno. *Ibid.* 197-203. —See C.A. 48, 13187c. H. L. H.

SHMIDT, Yu. A.

3

Reaction of vitreous silicates and sodium aluminosilicates with aqueous solutions. II. Reaction of sodium disilicate with aqueous solutions. Yu. A. Shmidt. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 230-43; cf. C.A. 48, 4785a. A continuously growing film of  $\text{SiO}_2$  is formed on the surface of the glass at 25 and 40°. This film is dissolved in the soln. at higher temps.; the soln. becomes progressively more alk.; the thickness  $\delta$  of the film has a max. value. Therefore the reaction speed  $v_{\text{Na}_2\text{Si}_2\text{O}_7}$ , after an initial drop, increases again. If the  $\text{Na}_2\text{Si}_2\text{O}_7$  is dissolved in  $\text{NaCl}$  or in alkali the amt.  $n_{\text{Na}_2\text{O}}$  of dissolved  $\text{Na}_2\text{O}$  decreases, the amt.  $n_{\text{SiO}_2}$  increases. The kinetics of the soln. process are dictated by the diffusion of ions through the silica film which has been formed on the surface by replacement of  $\text{Na}^+$  by  $\text{H}^+$ . An increase of 1° increases diffusion by 7-10%. An increase of  $\text{Na}^+$  and a decrease of  $\text{H}^+$  decrease the diffusion speed and increase the speed of a secondary process consisting in a soln. of the formed film. III. The influence of silica and alumina content in sodium silicate on their destruction in acids. S. K. Dubrov. *Ibid.* 244-52. The tetrahedron of  $(\text{AlO}_4)^{-}$  has an extra neg. charge compensated by  $\text{Na}^+$ . An increase in  $\text{Al}_2\text{O}_3$  increases the no. of  $\text{SiO}_4$  groups in the lattice and decreases the no. of  $\text{Si}-\text{O}-\text{Si}$  bonds. D. investigated the speed of soln. of a vitreous mixt. of  $\text{Na}_2\text{Si}_2\text{O}_7$  and  $\text{NaAlSiO}_4$  in 0.1N  $\text{HCl}$ . The glasses were prepd. from  $\text{Na}_2\text{CO}_3$ ,  $\text{Al}(\text{OH})_3$ , and quartz by heating in a Pt crucible at 1400-1500° while stirring with a Pt stirrer and annealing at 490-540°. The soly. tests were made in a thermostat at  $40 \pm 0.5^\circ$  in quartz containers. The amt. of dissolved components was detd. by colorimetric methods. Natural nephelin was also investigated. Addn. of  $\text{Al}_2\text{O}_3$  to glass first lowers its soly. in  $\text{HCl}$ . When the  $\text{Al}_2\text{O}_3$  content reaches 0.4 moles, the glass

structure is disturbed; Al ions go into soln. completely and  $\text{SiO}_2$  to 55%; the amt. of dissolved  $\text{Na}_2\text{O}$  also increases greatly. Beyond 0.4 mol.  $\text{Al}_2\text{O}_3$  the speed of soln. is lowered again; it is higher in natural, than in vitreous, nephelin. The following bonds exist in aluminosilicates: (1)  $\text{Si}-\text{O}-\text{Si}$ , all tops of  $\text{SiO}_4$  tetrahedrons are bound together, (2)  $\text{Si}-\text{O}-\text{Al}$  or  $\text{Si}-\text{O}-\text{Na}$ , the 3 other tops tied to Si, (3)  $\text{Al}-\text{O}-\text{Si}$  or  $\text{Na}-\text{O}-\text{Si}$ , 2 tips of  $\text{SiO}_4$  tetrahedron bound to Si, (4)  $\text{SiO}_4$  groups bound to Si at one top only, (5) tetrahedrons bound only to Na or Al. Soly. in aq. solns. indicates the relative amts. of each bond type. In aluminosilicates the primary reaction is an exchange of  $\text{Na}^+$  against  $\text{H}^+$ , the secondary reaction an exchange of  $\text{Al}^{+++}$  against  $\text{H}^+$ . S. Pakswel

MT

SHMIDT, Yu. A.

# USSR

Reactions of vitreous sodium silicates and aluminosilicates with aqueous solutions. IV. Reactions of vitreous sodium aluminosilicates with acid solutions. S. K. Dubrovyn. V. Reactions of vitreous sodium aluminosilicates with water. Yu. A. Shmidt (*Izvestia Akad. Nauk SSSR, Otdel. Khim. Nauk, 1981, 770-777*, 778-783).—IV. Vitreous Na aluminosilicates of the composition  $\text{Na}_2\text{O} \cdot 2\text{SiO}_2 \cdot 0.15-1 \text{ Al}_2\text{O}_3$  are extracted for 3-8 hr. with 0.01N- and 8-N-HCl and with 0.1N- $\text{H}_2\text{SO}_4$  and - $\text{HNO}_3$  at 40°. For a given sample the amounts of extractives (Na and Al salts, silicic acid) vary in the order 0.1N-HCl > 0.1N- $\text{HNO}_3$  > 0.1N- $\text{H}_2\text{SO}_4$  > 8-N-HCl. Extractibility falls with rising  $\text{Al}_2\text{O}_3$  content to a min. for  $\text{Na}_2\text{O} \cdot 2\text{SiO}_2 \cdot 0.15 \text{ Al}_2\text{O}_3$  and then rises to a max. at 0.5 $\text{Al}_2\text{O}_3$ . V. As for acids, extractibility with water is least for the composition  $\text{Na}_2\text{O} \cdot 2\text{SiO}_2 \cdot 0.15 \text{ Al}_2\text{O}_3$ . The effect is ascribed to increase in macromol. size, giving a space lattice made up of  $\text{AlO}_4$  and  $\text{SiO}_4$  tetrahedra, directly bound to 15 and 60% of the total Na ions, respectively. As the  $\text{Al}_2\text{O}_3$  content rises above the optimum, with consequent depolymerisation of silicate macromol. takes place, leads to lowering of the resistance of the surface layer to solvent action, and facilitates penetration of solvent into the underlying mass.

R. Trustoz

SHMIDT, YU. A.

USSR/ Chemical      Glass

Card : 1/1

Authors : Dubrovo, S. K. and Shmidt, Yu. A.

Title : Chemical stability of glassy silicates and sodium alumino-silicates

Periodical : Stek. i Ker., No. 6, 3 - 7, June 1954

Abstract : The chemical stability of a tri-component aluminum-silicate system which has great practical importance for the synthesis of various aluminum-silicate materials (heat resistant glass, glazings etc.) is explained. The rate of destruction of glassy sodium aluminum-silicates depends mainly upon the state of the silicon dioxide contained in the glass. Silicon dioxide determines the structure and strength of the surface protective layer, by the hydrogen ion concentration of the active solution and by the degree of electrolytic dissociation of the salts formed in the solution. Table, graphs.

Institution : ....

Submitted : ....

*Shmidt*

USSR/Chemical Technology. Chemical Products and their Application.  
Glass. Ceramics. Building Materials.

J-12

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27621.

Author : Yu. A. Shmidt.

Inst :

Title : Remarks about Some Works Concerning Chemical Stability of Glass.

Orig Pub: vSt: Stroyaniye stakla. M.-L., AN SSSR, 1955, 319-321.

Abstract: Basing on experimental data of the author and of S.K. Dubrovo, it is proved that the assertion of A.F. Zak concerning the transition of oxides into solution in certain ratios at the interaction of sodium-silica glasses with aqueous solutions is wrong. The proportion of components passing into the solution at the interaction of sodium-silica glasses with aqueous solutions is not constant, but depends on the temperature, the composition of the glass and the composition of the solution. Further, in the author's opinion, the assertion of Yu.A. Gastev that the

Card : 1/2

-20-

USSR/Chemical Technology. Chemical Products and their Application.  
Glass. Ceramics. Building Materials.

J-12

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27621.

silica film on the surface of alkali-silica glasses does not practically possess any protective properties and that the stability of glass is a function of the composition of the glass and the film, is not correct. The author points out that the properties of the silica film are closely connected with the composition and the structure of the original glass. Even in case of an identical composition of the film, its properties can be different depending on the degree of polymerization of silica in the original glass. See also RZhKhim, 1956, 72378, 75673, and 1957, 1567.

Card : 2/2

-21-

SHMIDT, Yu. A.

✓ Reaction of vitreous sodium silicates and aluminosilicates with aqueous solutions. VI. Reaction of vitreous sodium silicates and aluminosilicates with caustic alkali solutions. S. K. Dubrovoy and Yu. A. Shmidt. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 655-62 (Engl. translation); *cf. C.A.* 48, 4785a; 50, 2942c. The rate of soln. of  $\text{Na}_2\text{O}$  diminishes as the concn. of the alkali increases. In weak alkali solns. the  $\text{SiO}_2$  lags behind  $\text{Na}_2\text{O}$ , thus, a siliceous film remains on the surface of the disilicate. The residual siliceous film dissolves more rapidly as the  $\text{NaOH}$  concn. increases. For  $\text{KOH}$  soln., the rate of breakdown is less at the start of the expt. than it is for caustic soda. With the addn. of  $\text{Al}_2\text{O}_3$  to the  $\text{Na}$  disilicate, the rate of soln. of  $\text{SiO}_2$  is greatly reduced. For greater  $\text{Al}_2\text{O}_3$  amts., the rate of breakdown of the aluminosilicate increases somewhat.

Glenn Dooley

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DUBROVO, S.K.; SHMIDT, Yu.A.

Interaction of vitreous sodium silicates and aluminosilicates with aqueous solutions. Report no.6. Interaction of vitreous sodium silicates and aluminosilicates with alkali solutions. Izv.AN SSSR. Otd.khim.nauk no.3:403-410 My-Je '55.

(MLRA 8:9)

1. Institut khimii silikatov Akademii nauk SSSR  
(Silicates) (Alkalies)



DUBROVO, S.K.; SHMIDT, Yu.A.

Interaction of vitreous sodium silicates and aluminosilicates with aqueous solutions. Report no.7. Interaction of vitreous sodium silicates and aluminosilicates with salt solutions. Izv.AN SSSR.Otd.khim.nauk no.4:603-610 J1-Ag '55. (MLRA 9:1)

1.Institut khimii silikatev Akademii nauk SSSR.  
(Sodium silicates) (Glass manufacture--Chemistry)

SHMIDT, Yu. A.

15  
✓ Physicochemical characteristics of glasses for laboratory  
ware. S. K. Dubinova, S. S. Kayalova, and Yu. A. Shmidt.  
Steklo i Keram. 12, No. 10, 9-11 (1965).—Water resistance,  
coeff. of linear expansion, softening point, viscosity, and  
acid resistance of No. 23, B-2, L-5, Ts-32, and thermostable  
glass of the Pyrex type are given. B. Z. Kamich

Matt's

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1-4E2C  
PM MT

*Schmidt, Yu. A.*

<sup>7</sup>  
Glass for chemical apparatus. N. N. Koshelov, K. S. Bystrup'ev, A. V. Dyud'yukina, S. K. Dubrov, V. A. Schmidt, K. I. Borisov, V. M. Lipkin, I. S. Kozlov, S. M. Gerasimov, and V. I. Mikhaleva. U.S.S.R. 103,490, June 25, 1966. Chem. glassware and hand-drawn lab. app. is made of a glass contg.  $\text{SiO}_2$  68.6,  $\text{Al}_2\text{O}_3$  5.7,  $\text{CaO}$  7.5,  $\text{K}_2\text{O}$  3.0,  $\text{Na}_2\text{O}$  10, and  $\text{MgO}$  3.5%. To increase the resistance of the glass to alkalis and to decrease its production cost, 3.5%  $\text{BaO}$  and 0.2%  $\text{F}$  are added. M. Hosh...

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SHMIDT, Yu. A.

✓ The effect of lithium oxide on the physicochemical properties of aluminosilicate glasses. S. K. Dubrovskiy and Yu. A. Schmidt. *Zhur. Priklad. Khim.* 29, 557-60 (1956).

*Motiv* The effect of  $\text{Li}_2\text{O}$  on the viscosity  $\eta$  and the softening temp.  $t$  of glasses based on  $\text{CaO-MgO-Al}_2\text{O}_3\text{-SiO}_2$ , fired at  $1480-80^\circ$ , was detd. All glasses contained 71 mol. %  $\text{SiO}_2$  and 6%  $\text{MgO}$ , and the ratio  $\text{SiO}_2/\text{Al}_2\text{O}_3$  was not less than 7. In addn. they contained  $\text{B}_2\text{O}_3$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{CaF}_2$ ,  $\text{K}_2\text{O}$ ,  $\text{Na}_2\text{O}$ , and  $\text{Li}_2\text{O}$  in the following proportions, mol. %:  
(1) —, 10, 11, —, —, 2, —; (2) —, 10, 11, —, —, 2;  
(3) —, 10, 4, 7, 1, 1, —; (4) —, 10, 4, 7, —, 1, 1; (5) —,

10, 4, 7, —, —, 2; (6) 3, 3, 10, —, —, 2, —; (7) 3, 3, 10, —, —, 2; (8) —, 8.5, 4, 7, —, —, 3.5. The values of  $t$  and  $\eta$ , in poises, at  $1480$  and  $1260^\circ$  were: (1)  $790^\circ$ , —, —; (2)  $730^\circ$ , 690, 10,300; (3) —, 575, 6700; (4)  $680^\circ$ , 470, 4580; (5)  $680^\circ$ , 425, 4380; (6)  $740^\circ$ , 1050, 17,400; (7)  $700^\circ$ , 550, 7080; (8)  $630^\circ$ , 310, 2400.

I. Bencowitz

*Shmidt Yu.A.*  
USSR/Chemical Technology - Chemical Products and Their  
Application. Ceramics. Glass. Binders. Concrete.

H-7

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 2045

Author : Dubrovo S.K., Shmidt Yu.A.

Inst : -

Title : New Type of Heat-Resistant Glasses for Chemical-Laboratory  
Equipment.

Orig Pub : Zh. prikl. khimii, 1957, 30, No 4, 501-508

Abstract : Expansion of the fields of utilization of glass makes it  
necessary to develop new compositions of thermally and  
chemically stable glasses based on cheap and readily  
available raw materials. Glasses suitable for the manu-  
facture of chemical-laboratory equipment were being deve-  
loped on the basis of the  $\text{CaO-MgO-Al}_2\text{O}_3\text{-SiO}_2$  system.  
Alkali-free glasses of this system have a high tenacity  
and incipient softening temperature. To improve the cha-  
racteristics of the glasses use was made of incorporation

Card 1/3

USSR/Chemical Technology - Chemical Products and Their  
Application. Ceramics. Glass. Binders. Concrete.

H-7

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2045

soda and spodumene concentrate (4.4.2%  $\text{Li}_2\text{O}$ ). The glasses that were developed are characterized by an incipient softening temperature of 645-680°, linear expansion coefficient (at 20-400°) of 4.50  $\cdot 10^{-7}$ , and crystallization range of 800-1200°. Rate of crystallization is lower than that of Pyrex glass. In chemical stability the glasses are not inferior to Pyrex glass. Tenacity of the new glasses at temperatures above 1300° is lower than that of Pyrex glass while at lower temperatures it is higher. This facilitates the manufacture of the glass but renders more difficult its working using a glass blower torch.

Card 3/3

AUTHORS: Korelova, A. I., Candidate of Technical Sciences, Shmidt, Yu. A., Candidate of Chemical Sciences, Kozlovskaya, Ye. I.

TITLE: Works Carried out by Hungarian Scientists in the Field of Chemistry and Silicate-Technology (Raboty vengerskikh uchenykh v oblasti khimii i tekhnologii silikatov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 6, pp. 92 - 94 (USSR)

ABSTRACT: A group of collaborators of the Institute of Silicate-Chemistry of the AS USSR, together with the authors of this article, was sent to the Hungarian People's Democracy in December 1957 in order to become acquainted with the scientific works on the chemistry and technology of silicates (mainly glass and ceramics). These works were collected at the Institute of Chemical Research of the Hungarian AS, at the Central Research Laboratory for Building Materials, the Research Institute of the Chemical Heavy Industry, the professorial chairs of a number of universities, as well as at the laboratories of industrial plants. In Budapest and Vespem they had the opportunity of becoming acquainted with

Card 1/3

Works Carried out by Hungarian Scientists in the Field <sup>SOV</sup>50-58-6-17/45  
of Chemistry and Silicate-Technology

the works by leading specialists in the field of the chemistry and technology of silicates:

- 1) I. Narai-Sabo, Institute of Chemical Investigations, investigates the relations between the structure and the properties of glass.
- 2) B. Lend'yel, Professorial Chair for General and Inorganic Chemistry, investigates the electric conductivity as well as the dielectric properties of glass in dependence on both durability and structure.
- 3) E. Beretskiy, Professorial Chair of the Chemical-Technical College at Vespem, investigates the composition and properties of various kinds of clay and kaolin occurring in Hungary for the purpose of replacing imported materials.
- 4) Ya. Grofchik, Institute of the Investigations of the Chemical Heavy Industry (Vespem), investigates the process of the formation of mullite.
- 5) M. Korakh, Central Institute for the Investigation of Building Materials, investigates Hungarian minerals for the purpose of replacing imported raw-materials.
- 6) R. Moldvai, Technical College, produced and investigated ceramic masses in the  $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{SiO}_2$ -system which have a negative thermal

Card 2/3



Works Carried out by Hungarian Scientists in the Field SOV 30-58-6-17/45  
of Chemistry and Silicate-Technology

coefficient of expansion.

7) L. Erdei proposed new methods of chemical analysis.

8) I. Shayo, Institute of Metallurgy, proposed rapid methods of the analysis of ore, minerals, silicates, slags, refractory materials and alloys, this method is based on the determination of components without separating the same.

1. Chemistry--Hungary    2. Scientific research--Hungary

Card 3/3

5(2)

SOV/80-32-4-7/47

AUTHORS: Dubrov, S.K., Shmidt, Yu.A.

TITLE: Physical-Chemical Properties of Glass-Like Silicates and Aluminosilicates of Lithium (Fiziko-khimicheskiye svoystva steklobraznykh silikatov i aluminosilikatov litiya)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4, pp 742-749 (USSR)

ABSTRACT: Lithium compounds are used in many silicate materials. The physical properties of glass-like silicates and lithium aluminosilicates, like density and refraction index, are investigated here. Lithium-silicate glasses with  $\text{Li}_2\text{O}:\text{SiO}_2$  ratios of 1:1 and 1:3 are melted at temperatures of 1,300°C, those with ratios of 1:4 and 1:5 at 1,450-1,500°C. All of these glasses are less viscous than the corresponding sodium glasses. In the system  $\text{Li}_2\text{O}-\text{SiO}_2$  were obtained glasses with a lithium oxide content of 16.7 to 50 molar-%, and in the system  $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{SiO}_2$  glasses with a content of 16.7 to 32.8 molar-% and an aluminum oxide content of 1.6 to 25 molar-%. The refraction index is determined by the immersion method with an error of  $\pm 0.003$ , the density by the method of hydrostatic weighing. The lithium

Card 1/2

SOV/80-32-4-7/47

Physical-Chemical Properties of Glass-Like Silicates and Aluminosilicates of Lithium

silicates and aluminosilicate glasses have a higher refraction index and a lower density compared to analogous sodium glasses. The density curve of lithium silicate glasses reaches a maximum at a  $\text{SiO}_2$  content of 58-63 molar-%. The increase of the silica content in the glasses raises the molar volume and reduces the refraction of the oxygen ion. It is assumed that aluminum in the glasses is quadricovalent [Ref 14]. There are 4 graphs, 4 tables and 14 references, 3 of which are Soviet, 6 English, 3 American, 1 German and 1 French.

SUBMITTED: April 28, 1958

Card 2/2

Vitreous State (Cont.)	807/5035
Artemukhin, M.M. Calculation of the Electric Field in Patterns of Special Shape Including Boundary Effects	257
Kamata, O.Y. Dependence of Electrical Conductivity of Solid Glasses on Composition	260
Khar'yakov, V.A., G.V. Krasov, and N.M. Zakara. Electrical Conductivity of Glasses of the $\text{PbO-Al}_2\text{O}_3\text{-SiO}_2$ System	264
Kostomarov, K.A. Study of the Neutralization Effect of Electrical Conductivity in Fused Boron Glasses	266
Yevdokimov, K.K. Study of Diffusion of Some Alkali Ions in Silica Glasses With the Aid of Radioactive Isotopes	270
Ivanova, Ye.A. Diffusion of Cesium Ions in Glass Depending on Composition	274
Ioffe, V.A., G.I. Evsteevskiy, and I.S. Vucherkayna. Electrical Properties of Aluminosilicates	278
Card 12/22	
Vitreous State (Cont.)	807/5035
Verheyden, H.M., and V.A. Chelverovskiy. Amorphous Zirconium-Containing Silica Glasses of Complex Structure	282
Qubayrov, V.I., and A.F. El'mov. On the Problem of Explaining the Nature of Resonance Piezoelectric Forces in Aluminosilicates	286
Nikol'skiy, B.F., and N.M. Shal'ko. Electrode Glass Properties	292
Petrovskiy, G.F. Electrical Properties of Soda Barium Silicate Glasses	300
Discussion	303
PHYSICOCHEMICAL PROPERTIES OF GLASSES	
Dependence of Properties on Composition	
Yevdokimov, K.K. On Some of the Studies Included in the Section Dealing With Physicochemical Properties of Glasses	307
Vitreous State (Cont.)	807/5035
Shal'ko, Yu. A. On the Dependence of Properties of Alkali Silicate Glasses on Composition	310
Gladkov, A.V., and V.V. Gubaidin. Study of the Polymeric Structure of Inorganic Glasses	314
Medvedev, N.M. Refraction and Absorption of Light by Some Crystals and Glasses	318
Yakhkind, A.K. Fermi-like Law of P.J. Flory and Optical Constants of Glasses	323
Shaymurov, V.T. Calculation of the Activation Energy of Viscous Flow of Alkali Silicate Glasses of a Given Chemical Composition	328
Kind, M.Ye., and G.A. Mikhlin. Effect of Various Additives on Properties of Fused Quartz	331
Syrtel'skiy, Z.M. Physicochemical Properties of Aluminophosphate Glasses	335
Card 14/22	



5.2100,5.4130

77627  
SOV/80-33-2-2/52

AUTHOR: Shmidt, Yu. A.

TITLE: Reaction of Vitreous Lithium Silicates With Water and  
Their Comparison With Sodium Silicates

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2, pp 266-273  
(USSR)

ABSTRACT: This article deals with the study of vitreous lithium  
silicate reactions with water and a comparison of such  
with the reactions of corresponding sodium silicates.  
Previous articles on properties of vitreous lithium sili-  
cates are mentioned by the author. The experiments showed  
that amounts of the components which dissolve are smaller  
for lithium silicates than for corresponding sodium sili-  
cates. The greatest dissolution rate is observed for  
vitreous lithium metasilicate. It is the only lithium  
silicate studied that dissolved in water completely at  
40° C. According to literature, crystalline metasilili-  
cates of sodium and lithium consist of infinite  $\text{SiO}_4$

Card 1/4

Reaction of Vitreous Lithium Silicates With  
Water and Their Comparison with Sodium  
Silicates

77627  
SOV/80-33-2-2/52

tetrahedron chains linked through alkali ions. Vitreous metasilicates are probably composed of similar but disordered chains. When such a glass is treated with water, a residual protective silicon dioxide layer cannot form on the surface since the alkali ions easily go into solution and as a result, silicon-oxygen chains depolymerize in the alkaline solution. Such a film starts to form already on  $\text{Li}_2\text{O} \cdot 1.1 \text{SiO}_2$  and  $\text{Li}_2\text{O} \cdot 1.2 \text{SiO}_2$ , but in the case of sodium silicates the film only starts to appear on  $\text{Na}_2\text{O} \cdot 1.7 \text{SiO}_2$  and shows noticeable retarding effect on  $\text{Na}_2\text{O} \cdot 2 \text{SiO}_2$ . For lithium silicates which contain 58 or more mole-percent  $\text{SiO}_2$  leaching predominates. For sodium silicates leaching does not predominate until the  $\text{SiO}_2$  content reaches 65 or more mole-percent. As the  $\text{SiO}_2$  content increases, the difference between the silicates of lithium and sodium

Card 2/4

Reaction of Vitreous Lithium Silicates With  
Water and Their Comparison with Sodium  
Silicates

77627  
SOV/80-33-2-2/52

decreases. The decomposition rate of vitreous silica was determined under similar conditions. Since vitreous silica does not react with water, its powder was treated with 0.001N LiOH and 0.002N NaOH. This introduced alkali oxides into the glass. The experiments showed that introduction of  $\text{Na}_2\text{O}$  into the glass weakens its silicon-oxygen skeleton to a greater degree than the introduction of an equivalent amount of  $\text{Li}_2\text{O}$ . When similar experiments with vitreous lithium silicates and vitreous silica were conducted at  $100^\circ\text{C}$ , it was found that an increase in temperature causes a complete dissolution of  $\text{Li}_2\text{O} \cdot 1.2 \text{SiO}_2$  glass, and brings  $\text{Li}_2\text{O} \cdot 1.4 \text{SiO}_2$  glass near dissolution. For the rest of the glasses, leaching predominates. Composition has a relatively small effect on reaction rates of lithium glasses, but a considerable one on those of sodium glasses. A temperature rise has a much greater effect on the reaction rates of sodium glasses

Card 3/4



Properties of Vitreous Lithium Silicates With  
Water and Their Comparison with Sodium  
Silicates

77627

SOV/80-33-2-2/52

than on those of lithium glasses. The properties of lithium silicate glasses can be explained by the smaller size of lithium ions and their greater reactivity with oxygen anions. There are 5 tables; 2 figures; and 8 references, 7 Soviet, 1 U.S. The U.S. reference is: G. Donnay, J. D. H. Donnay, Am. Mineral, 38, 3-4, 163 (1953). Institute of Silicate Chemistry, USSR Academy of Sciences (Institut khimii silikatov AN SSSR)

SUBMITTED: April 17, 1959

Card 4/4

5.4120

78204  
SOV/80-33-3-5/47

AUTHOR: Shmidt, Yu. A.

TITLE: Reaction Between Hyaline Lithium Aluminosilicate and Water

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 3, pp 536-539 (USSR)

ABSTRACT: Continuing his and S. K. Dubrovo's studies on the subject (abstract 77627), the author determined the moles of  $R_2O$ ,  $Al_2O_3$ , and  $SiO_2$  dissolved in 120 ml water at  $40^\circ C$  within 6 hr and referred the found values to  $1 \text{ cm}^2$  of the surface of the dissolved hyaline lithium- or sodium aluminosilicate powder. The obtained values  $n_{R_2O}$ ,  $n_{Al_2O_3}$ , and  $n_{SiO_2}$  gave the factors  $\alpha = \frac{n_{SiO_2}}{m \cdot n_{R_2O}}$  and

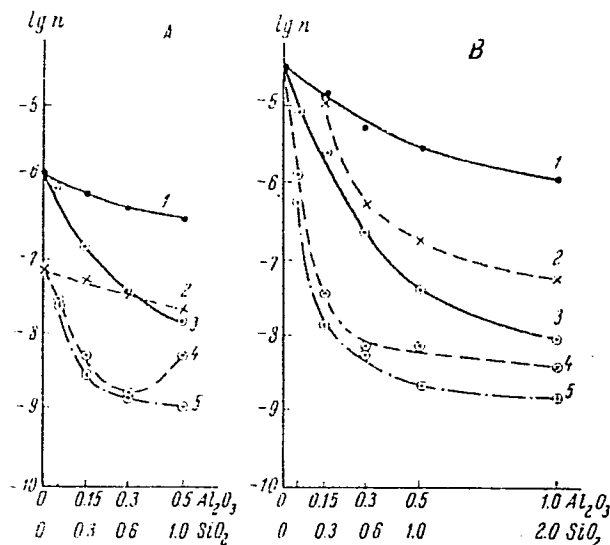
Card 1/5  $\beta = \frac{n_{Al_2O_3}}{k \cdot n_{R_2O}}$  of disintegration of the framework of

Reaction Between Hyaline Lithium Aluminosilicate  
and Water

78204  
SOV/80-33-3-5/47

linked  $\text{SiO}_4^{4-}$  and  $\text{AlO}_4^{5-}$  tetrahedra, where m and k are the same as in the formula  $\text{R}_2\text{O} \cdot k\text{Al}_2\text{O}_3 \cdot m\text{SiO}_2$  of the aluminosilicate. Li and Na aluminosilicates with four different m and k values were tested. The experimental data is illustrated in Figs. 1 and 2. Comparison with the author's preceding experiments revealed that powdering of the glasses reduces  $n_{\text{Na}_2\text{O}}$ , increases  $n_{\text{Al}_2\text{O}_3}$ , and  $n_{\text{SiO}_2}$ .  $n_{\text{Na}_2\text{O}}$  decreases with increasing k more rapidly than with increasing m. Lithium aluminosilicate dissolves at a lower rate than sodium aluminosilicate, but the difference reduces with increasing k. Both aluminosilicates indicate that the degree of disintegration of the framework of linked  $\text{SiO}_4$  tetrahedra, defined by  $\alpha$  value, first drops with the increasing  $\text{Al}_2\text{O}_3$  content of the glass until it reaches minimum

Card 2/5

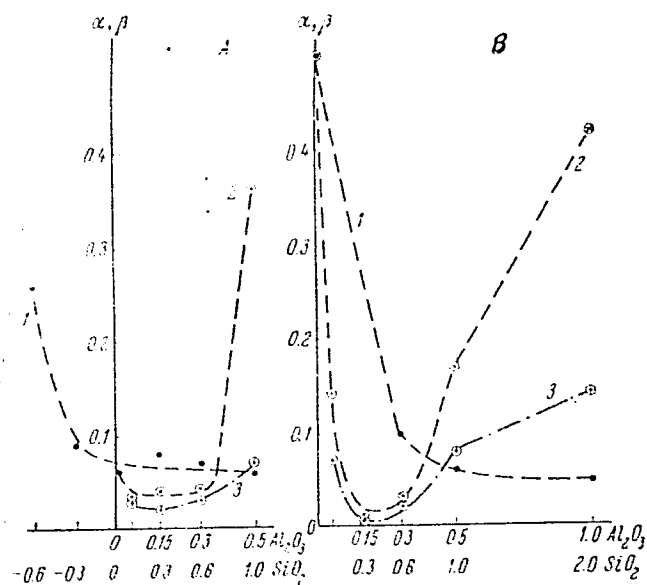


78204  
SOV/80-33-3-5/47

Fig. 1. Comparison of the quantities of components dissolved during 6 hr of reaction between water and lithium- or sodium silicates and aluminosilicates (in mol.). (A) Lithium glasses; (B) Sodium glasses.

Silicates: (1)  $\lg n_{R_2O}$ ; (2)  $\lg \frac{n_{SiO_2}}{m}$ . Aluminosili-  
cates: (3)  $\lg n_{R_2O}$ ; (4)  $\lg \frac{n_{SiO_2}}{m}$ ; (5)  $\frac{n_{Al_2O_3}}{k}$ .

Card 3/5



78204, SOV/80-33-3-5/47

Fig. 2. Comparison of the dependence of dissolved silica ( $\alpha$ )- and alumina ( $\beta$ ) quantities on the composition

hyaline lithium- and sodium silicates and aluminosilicates. (A) Lithium glasses; (B) Sodium glasses. Silicates: (1)  $\alpha$ . Aluminosilicates: (2)  $\alpha$ ; (3)  $\beta$ .

Card 4/5

Reaction Between Hyaline Lithium Aluminosilicate  
and Water

78204  
SOV/80-33-3-5/47

at 0.15 to 0.3 mol  $\text{Al}_2\text{O}_3$ , then increases rapidly with the latter's further increase.  $\text{Al}_2\text{O}_3$  dissolves to a lesser extent than  $\text{SiO}_2$  and, consequently, forms a surface film on the silicates being dissolved. The film hardly affects further dissolution of silicates. A higher silica content reduces the amount of dissolved oxides and the degree to which the framework of linked tetrahedra disintegrates. There are 2 figures; 1 table; and 7 Soviet references.

SUBMITTED: April 17, 1959

Card 5/5

S/080/62/035/003/020/024  
D204/D302

15 2120  
AUTHORS: Dubrovo, S. K., Lileyev, I. S., Mozheyko, V. I. and  
Shmidt, Yu. A.

TITLE: Glasses with increased heat stability for chemical  
laboratory ware and apparatus

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 3, 1962, 669-671

TEXT: The object of the present work was to prepare low-borate  
glasses with increased thermal shock resistance, applicable to  
the above uses. The range of compositions tried was (wt.%):  $\text{SiO}_2$   
72.5 - 75.0,  $\text{Al}_2\text{O}_3$  6.0 - 7.8,  $\text{B}_2\text{O}_3$  3.2 - 4.0, BaO 5.0, CaO 0 - 1.7,  
 $\text{Na}_2\text{O}$  5.0 - 7.8,  $\text{Li}_2\text{O}$  0.5 - 1.0,  $\text{CaF}_2$  0 - 2.5. BaO may be replaced  
by SrO. The glasses were fused at 1500 - 1520°C and their coeffi-  
cients of linear thermal expansion ( $\alpha$ ), softening temperature,  
tendency towards crystallization and chemical stability were mea-  
sured. Two of these glasses, AT-24 ( $\text{SiO}_2$  75.0,  $\text{Al}_2\text{O}_3$  8.0,  $\text{B}_2\text{O}_3$  3.2,

Card 1/3

Glasses with increased ...

S/080/62/035/003/020/024  
D204/D302

BaO 4.8, CaF<sub>2</sub> 1.7, Na<sub>2</sub>O 6.8 and Li<sub>2</sub>O 0.5) and BT-24 (VT-24) (SiO<sub>2</sub> 72.6, Al<sub>2</sub>O<sub>3</sub> 6.8, B<sub>2</sub>O<sub>3</sub> 4.0, BaO 5.0, CaO 0.5, CaF<sub>2</sub> 2.5, Na<sub>2</sub>O 7.8, Li<sub>2</sub>O 0.75) were prepared on a larger scale in the Druzhnaya Gorka glassworks and were there shaped into articles. It was found that  $\alpha_{20-400^{\circ}\text{C}}$  was  $53-60 \times 10^{-7}/^{\circ}\text{C}$  [Abstracter's note: cm/<sup>o</sup>C?\_7, the softening temperatures were  $\sim 570^{\circ}\text{C}$  and there was no tendency towards devitrification. The glasses were stable to distilled water and 1N H<sub>2</sub>SO<sub>2</sub> on prolonged boiling, but less so to 2N NaOH. All At-24 ware withstood quenching through  $170^{\circ}\text{C}$ , whilst VT-24 was only slightly less shock resistant. Thermal shock resistance was thus superior to that of glass no. 23 and 29 produced at the D.G. works and to 4-32 (Ts-32) glass. The same physico-chemical tests were carried out on commercial glasses for comparison. The results are briefly discussed and it is concluded that the glasses developed are suitable for production of chemical glass ware and appa-

Card 2/3



Glasses with increased ...

S/080/62/035/003/020/024  
D204/D302

ratus. There is 1 table and 2 Soviet-bloc references.

SUBMITTED: May 30, 1961

Card 3/3

L 12424-65 EWT(m)/EWP(e)/EWP(t)/EWP(b) Pq-4 IJP(c) JD/vh

ACCESSION NR: AP4047128

S/0080/64/037/010/2299/2303

AUTHOR: Shmidt, Yu. A.; Alekseyeva, Z. D.

TITLE: Vitreous potassium, rubidium, and cesium silicates

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 10, 1964, 2299-2303 B

TOPIC TAGS: vitreous alkali silicate, alkali silicate glass; potassium silicate, rubidium silicate, cesium silicate, high silica glass, glass property, glass crystallization

ABSTRACT: In the course of systematic investigation of the physico-chemical properties of binary alkali-silicate glasses the following glasses were synthesized:  $K_2O-SiO_2$  with 5—45 mol%  $K_2O$ ,  $Rb_2O-SiO_2$  with 8—46 mol%  $Rb_2O$ , and  $Cs_2O-SiO_2$  with 4—36 mol%  $Cs_2O$ . An additional reason for investigating these glass systems was that production of rubidium and cesium salts has increased in recent years. The glasses were prepared by melting pure alkali salts with amorphous silica at a maximum 1500—1650C. Comparatively easier melting was observed with rubidium and cesium than with potassium, sodium or lithium high-silica glasses. Therefore,  $Rb_2O$  and  $Cs_2O$  are the most efficient

Card 1/3

L 12424-65

ACCESSION NR: AP4047128

fluxes for melting glasses with a high silica content. The index of refraction (determined by the immersion method) and the picnometric density of the glasses were found to increase in the sequence K-Rb-Cs, and also with increasing alkali oxide content. The density of the atomic packing in the silicon-oxygen skeleton and atomic weight are the main factors determining the magnitude of difference in the index of refraction and density between glasses with different alkali oxide. A linear increase in the coefficient of thermal expansion ( $\alpha$  20—400C) was observed with increased alkali oxide content. The coefficient of thermal expansion increased also with the increasing atomic number of the alkali metal, with the exception of cesium, since the coefficients of thermal expansion of cesium-silicate glasses are the same as those of potassium-silicate glasses. In all glass systems studied, the crystallization rate determined by the annealing and tempering method decreased with increasing  $\text{SiO}_2$  content to a minimum corresponding to tetrasilicate. The times and temperatures of crystallization are different in the three systems. The  $\text{Rb}_2\text{O-SiO}_2$  and  $\text{Cs}_2\text{O-SiO}_2$  glasses with 10 to 15 mol%  $\text{R}_2\text{O}$  do not crystallize. The softening points of the glasses were determined. Orig. art. has: 3 figures and 1 table.

Card 2/3

L 12424-65

ACCESSION NR: AP4047128

ASSOCIATION: none

SUBMITTED: 16Oct63

SUB CODE: MT

ATD PRESS: 3121

NO REF SOV: 004

ENCL: 00

OTHER: 005

Card 3/3

ACCESSION NR: AT4040549

S/0000/64/000/000/0116/0121

AUTHOR: Schmidt, Yu. A. (Deceased)

TITLE: Physicochemical properties of rubidium and cesium glass

SOURCE: Soveshchaniye po khimii redkikh elementov. Leningrad, 1961. Khimiya redkikh elementov (Chemistry of rare elements); doklady\* soveshchaniya. Leningrad, Izd-vo Leningr. univ., 1964, 116-121

TOPIC TAGS: glass, glass physicochemical property, lithium glass, cesium glass, rubidium glass, borosilicate, glass plasticity, glass density, calcium glass, thallium glass

ABSTRACT: In order to clarify data in the literature on the effect of  $\text{Rb}_2\text{O}$  and  $\text{Cs}_2\text{O}$  on the viscosity and liquidus temperature of silicate glass, the author investigated the density, strength and plasticity of glass of the  $\text{Rb}_2\text{O}-\text{B}_2\text{O}_3-\text{SiO}_2$  and  $\text{Cs}_2\text{O}-\text{B}_2\text{O}_3-\text{SiO}_2$  systems, with a silica content higher than 80 mol%. Analysis shows that in the lithium-cesium series, the density of the glass increases, but the packing density of the silicon oxide (volume taken up by 1 gram-atom of oxygen) decreases. The breaking index of the glass

Card 1/3

ACCESSION NR: AT4040549

increases in the order sodium-cesium, lithium glass occupying an anomalous position. The coefficient of linear expansion increases considerably from lithium to calcium glass, and then remains practically constant. The areas of glass formation in  $\text{Rb}_2\text{O}-\text{B}_2\text{O}_3-\text{SiO}_2$  and  $\text{Cs}_2\text{O}-\text{B}_2\text{O}_3-\text{SiO}_2$  are practically the same. At a  $\text{B}_2\text{O}_3$  concentration of up to 8 mol% in rubidium and up to 4% in cesium systems, the border of the area of glass formation appears clear. The density and coefficient of linear expansion increase with increasing alkali content. When silicate is replaced by boron anhydride, the breaking index of rubidium glass first increases and then decreases. The softening temperature of these glasses was 630-750C. Further, when glass with a content of 89 mol%  $\text{SiO}_2$ , 8%  $\text{B}_2\text{O}_3$  and 3% of various alkali oxides was prepared, the number of bubbles decreased sharply from lithium to cesium to thallium glass. It was also shown that replacement of  $\text{SiO}_2$  by oxides of elements belonging to Groups II-IV (such as strontium, barium, lead and antimony) led to bubbleless glass in the laboratory. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 21Jan64

DATE ACQ: 28May64

ENCL: 00

Card 2/3

ACCESSION NR: AT4040549

SUB CODE: MT

NO REF SOV: 005

OTHER: 012

Card 3/3

YEGOROVA, A.G.; KAZANSKAYA, L.A.; SEMIDIN, I.I.; LEPASHOVA, Ye.V.;  
BENEDIKTENKO, I.P.

[New strains of lactic acid bacteria for rye leaven preparation] Novye shchasy polucheniye bakterii rzhanykh zakvasek. Moskva, TSentr. in-s nauchno-tekhn. informatsii pishchevoi promyshl., 1968. 34 p. (MIRA 17:8)



17(1)

SOV/20-126-3-66/69

AUTHOR: Schmidt, Z. N.

TITLE: Variation in the Permeability of Hematoencephalic and Hemato-  
ophthalmic Barriers at a Drop of Atmospheric Pressure (Izme-  
neniye pronitsayemosti gemato-entsefalicheskogo i gemato-oftal'-  
micheskogo bar'yerov pri ponizhenii atmosfernogo davleniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3,  
pp 696 - 698 (USSR)

ABSTRACT: The biological barrier functions play a very important part  
in maintaining the constancy of the inner state of many vital  
organs. For the study of their permeability, various indica-  
tors including dyestuffs, electrolytes (Refs 1-5) as well as  
radioactive isotopes are used (Refs 6 & 8). As the central  
nervous system is sensitive to hypoxia (Refs 9-11), it was  
interesting to clarify whether the function of the hematoence-  
phalic barrier (HEB) is weakened. A vacuum was produced under  
an airtight glass bell. Radioactive phosphorus ( $\text{Na}_2\text{HP}^{32}\text{O}_4$ )  
was used as an indicator, which was administered to guinea-  
pigs intraperitoneally, to rats intravenously. One hour later,  
the animals were killed by decapitation. It was found that p<sup>32</sup>

Card 1/3

Variation in the Permeability of Hematoencephalic and Hematoophthalmic Barriers at a Drop of Atmospheric Pressure SOV/20-126-3-66/69

was distributed rather irregularly in the organism of the rat after intravenous introduction. According to the quantity of sorbed  $P^{32}$ , the organs constitute a series as follows: brain < eye-chamber liquid < serum < blood < heart < liver < kidney, (in conformity with reference 6). In the test series with a decrease in pressure, the rats were placed into a pressure chamber immediately after the introduction of the isotope, where they stayed at an altitude of 4, 6 and 12 km. They showed reactions of different kinds: unrest, then adynamia at 7-8 km, short breath, then followed cyanosis; at 11-12 km, the animals assumed a forced posture, lay down on their belly, and moved creeping about. Figure 1A shows that, with a decrease in atmospheric pressure, the permeability of the HEB and of the HOB increases. The degree of this increase depends on the degree of pressure drop. The increase of  $P^{32}$  in the brain and in the chamber liquid of rats in rising to various altitudes gives proof of the weakening in the function of the barrier systems. The guinea-pigs are less resistant to the lowering of atmospheric pressure. Already at an altitude of 8-10 km, they were in strong clonic convulsions. Besides, the

Card 2/3

Variation in the Permeability of Hematoencephalic and Hematoophthalmic Barriers at a Drop of Atmospheric Pressure SOV/20-126-3-66/69

HEB and HOB are less permeable in case of the guinea-pigs than in case of the rats. As figure 1 shows, the permeability of the HEB and of the HOB increases. At an altitude of 10 km, it increases considerably. Thus, the disturbances in the functions of the biological barriers in rising are higher for the guinea-pigs than for the rats. G. Ye. Vladimirov (Ref 16) found no increase in permeability of the HEB for  $P^{32}$  in rats because he made his investigations a long time after the introduction of the isotope. There are 1 figure and 17 references, 15 of which are Soviet.

ASSOCIATION: Odesskiy gosudarstvennyy meditsinskiy institut im. N. I. Pirogova (Odessa State Medical Institute imeni N. I. Pirogov)

PRESENTED: February 25, 1959, by L. S. Shtern, Academician

SUBMITTED: February 20, 1959

Card 3/3

S/020/60/132/05/68/069  
B011/B002

AUTHOR: Shmidt, Z. N.

TITLE: On the Mechanism of Variations in the Permeability of  
Biological Barriers With a Drop in Atmospheric Pressure

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5,  
pp. 1216-1218

TEXT: The author proved in an earlier paper (Ref. 1) that a drop in atmospheric pressure gives rise to an appreciable increase in the permeability of the hemato-encephalic and hemato-ophthalmic barrier for  $P^{32}$ . Here, the author wanted to clarify the causes underlying the disturbance of the permeability of barrier structures at high altitudes. It was necessary to find out in how far these disturbances depended on the drop of barometric pressure and to what extent on the resulting hypoxia. For this purpose, the author carried out three series of experiments: (1) a brief ascent of rats to an altitude of 12 km; (2) an equal rarefaction of air in a chamber, but with oxygen supply; (3) rats in an

Card 1/4

On the Mechanism of Variations in the  
Permeability of Biological Barriers With  
a Drop in Atmospheric Pressure

S/020/60/132/05/68/069  
B011/B002

airtight vessel, where they gradually showed signs of asphyxia. The author used  $\text{Na}_2\text{HP}^{32}\text{O}_4$  as an indicator, which was injected intravenously in a dose of 50000 decays per 1 g. 1-2 mg of phosphorus per kg served as ballast. The animals were decapitated 1 h after the isotope introduction.

The barrier permeability was established from the  $\text{P}^{32}$  amount in the brain and in the chamber liquid as compared with the amount in the blood serum, and was expressed in per cents (relative activity). The radioactivity of individual brain segments and of the chamber liquid was determined on the B-2 (B-2) apparatus by means of the AC-2 (AS-2) counter. It was established in the control series that the radioactivity of the individual brain segments of normal rats is not uniform. In experiments with reduced pressure it was found that the permeability of both barriers (HEB and HOB) was considerably increased. In the second series of experiments, the  $\text{P}^{32}$  amount in the brain and in the chamber liquid was considerably larger. The relative activity of the hypothalamus was 74%, that of the cerebellum, 50%, and that of the forebrain, 41%. In the hypophysis, the  $\text{P}^{32}$  content

Card 2/4

On the Mechanism of Variations in the  
Permeability of Biological Barriers With  
a Drop in Atmospheric Pressure

S/020/60/132/05/68/069  
B011/B002

was almost unchanged and amounted to 760% of that in the blood serum. The HOB permeability was also increased: in the chamber liquid from 53 to 105%. The pressure in the third series corresponded to an altitude of 12 km (145 torr). The oxygen content fluctuated between 70 and 85%. No change was proven here to occur in the barrier permeability. Hence, the oxygen addition prevents disturbances of permeability (Table 1). Further, it may be seen that due to a rapid drop of atmospheric pressure the relative activity of the chamber liquid is almost doubled. In the removal of hypoxia, the permeability of HOB is not increased in this case. The passage of the acid phosphate ion into the brain tissue and into the chamber liquid is possibly brought about by a shift of the acid-base equilibrium at high altitudes. The oxygen addition reduces this shift of the acidic-alkaline equilibrium. It was proven in the third series that in asphyxia and in CO<sub>2</sub> concentration, the activity of various brain sections is several times reduced. Asphyxia reduces the permeability of HEB for P<sup>32</sup> considerably. The chamber liquid differs greatly from the brain with respect to the P<sup>32</sup> content. The author mentions

Card 3/4

On the Mechanism of Variations in the  
Permeability of Biological Barriers With  
a Drop in Atmospheric Pressure

S/020/60/132/05/68/069  
B011/B002

papers by E. L. Romel' and K. A. Gerchikova (Ref. 16). There are  
1 table and 17 references: 14 Soviet, 2 German, and 1 Danish.

ASSOCIATION: Odesskiy gosudarstvennyy meditsinskiy institut im. N. I.  
Pirogova (Odessa State Medical Institute imeni N. I.  
Pirogov)

PRESENTED: August 20, 1959, by L. S. Shtern, Academician

SUBMITTED: August 20, 1959



Card 4/4

SHMIDT, Z. N.

Cand Med Sci - (diss) "Penetrability of hemato-encephalitic and hemato-ophthalmological barriers in the lower of atmospheric pressure. (Experimental study)." Stalino, 1961. 12 pp; (Stalinskiy Med Inst imeni A. M. Gor'kiy); 270 copies; price not given; (KL, 6-61 sup, 242)



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SHMIDT-ROZHDESTVENSKAYA, Ye.D.

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rheumatic heart defects. Terap.arkh. 31 no.12:76-80 D '59.

(MIRA 13:4)

1. Iz fakul'tetskoy terapevticheskoy kliniki (zav. - prof. B.P.  
Kushelevskiy) Sverdlovskogo meditsinskogo instituta.  
(RHEUMATIC HEART DISEASE ther.)  
(ANTICOAGULANTS ther.)

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Diagnosis and treatment of embolic pulmonary infacts. Klin.med.  
39 no.4:23-29 '61. (MIRA 14:4)

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Age groups and growing speed of the pike perch (*Lucioperca lucioperca*  
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(Volga River--Perch) (Kama River--Perch)

SHMIDTOV, A.I.

Age groups and growing speed of the pike (*Esox lucius* L.) in the  
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141-158 '49. (MLRA 10:2)

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Role and significance of predatory fishes in waters of the Tatar  
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(Tatar A.S.S.R.--Fishes)



SHMIDTOV, A.I.

Specific composition of fish stocks and their numbers in the  
Kuybyshev Reservoir area. Uch.zap.Kaz.un. 116 no.1:221-226 '55.  
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1.Kafedra zoologii pozvonochnykh.  
(Tatar A.S.S.R.--Fishes)

SHMIDTOV, A.I.

Fishes of the Kovaly lakes and their characteristics. Uch. zap.  
Kaz. un. 117 no.9:256-261 '57. (MIRA 13:1)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.  
Kafedra zoologii pozvonochnykh.  
(Tatar A.S.S.R.--Fishes)

SHMIDTOV, A.I.

Possibilities for adding wild and pond carp and whitefish to the  
fish stocks of the Kovali lakes. Uch. zap. Kaz. un. 117 no.9:262-267  
'57. (MIRA 13:1)

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Kafedra zoologii pozvonochnykh.  
(Tatar A.S.S.R.--Fishes)

SHMIDTOV, A.I.

Department of Vertebrate Zoology. Uch.zap.Kaz.un, 120 no.3:65-74 '60.  
(MIRA 14:6)

(Tatar A.S.S.R.--Zoological research)

SHMIDTS, Sergey Viktorovich; CHEPELKINA, L.A., red.

[Safety techniques in hydrological work] Tekhnika bez-  
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(MER. 17:11)

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SHMIGAL'SKIY, V.N.

AUTHOR: Shmigal'skiy, V.N., Engineer

3-4-12/28

TITLE: More Independence, closer to Production (Bol'she samostoyatel'nosti, blizhe k proizvodstvu)

PERIODICAL: Vestnik vysshey shkoly, April 1957, # 4, p 53-55 (USSR)

ABSTRACT: The Party Bureau of the Mine Construction Faculty of the Kemerovo Mining Institute attributes the poor progress of some students in their studies to too much home work. It proved that for the assigned outside work 8-9 hours daily, including days off, were required. The author suggests reducing the weekly compulsory work hours from 36 to 20-24 hours, and deals in detail with such measures taken in previous years, in the course "Construction Materials". He then discusses the important role which practical experience plays in training students to work independently. He mentions the relations which are being established between the Chair on Construction Matters and the Chair of Foreign Languages, pointing out that the possibilities of using the latest foreign data on construction materials and construction are thus being utilized and that this increases student interest in the study of foreign languages.

ASSOCIATION: Kemerovo Mining Institute (Kemerovskiy gornyy institut)  
AVAILABLE: Library of Congress  
Card 1/1

SHMIGAL'SKIY, V.N., aspirant

Evaluating the intensity of vibration in packing concrete  
mixes. Nauch.dokl.vys.shkoly; stroi. no.2:165-172 '58.  
(MIRA 12:1)

(Vibrated concrete)



DESOV, A.Ye., prof., doktor tekhn.nauk; SHMIGAL'SKIY, V.N., inzh.;  
SOVALOV, I.G., kand.tekhn.nauk; ~~LALAKINA, T.A., inzh.~~;  
MUNITIS, A.P., red.izd-va; RUDAKOVA, N.I., tekhn.red.

[Instruction on the time and intensity of vibration and on the selection of concrete mixes of the most efficient placing qualities] Instruktsiia po prodolzhitel'nosti i intensivnosti vibratsii i po podboru sostava betonnoi smesi povyshennoi udoboukladyvaemosti. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam, 1959. 44 p. (MIRA 13:1)

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(Vibrated concrete)

SHMIGAL'SKIY, V.N., inzh.

Estimating the equivalence of vibrations of various frequencies.

Trudy NIIZHB no.11:186-209 '59.

(MIRA 13:6)

(Vibrated concrete)

SHMIGAL'SKIY, V.N., inzh.

Multiple-frequency vibration. Trudy NIIZHB no.21:103-112 '61.  
(MIRA 14:12)

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stroitel'stva i arkhitektury SSSR, g. Rostov-na-Donu.  
(Vibrated concrete)

SHMIGAL'SKIY, V.N., kand.tekhn.nauk; ISHCHEKNO, M.T., inzh.

New method of determining the gross content of pulverulent and clayey  
(Silt) particles in sand used for construction purposes. Sbor.  
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SHMIGAL'SKIY, V.N., kand.tekhn.nauk

Effect of the forms of the vibrations and the hollow-forming insertion pieces on the degree of compaction of concrete under three-dimensional vibration. Trudy NII ZHB no.29:98-116 '62. (MIRA 15:11)  
(Vibrated concrete)

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Effect of the phase angle between high and low frequencies on the  
efficiency of compaction. Trudy NII ZHB no.29:117-129 '62.  
(MIRA 15:11)

(Vibrated concrete)

SHMIGAL'SKIY, V.N., kand.tekhn.nauk

Experimental data on the compaction of concrete mixe n forms  
not attached to vibration tables. Trudy NIIZHB no.33:188-196  
1964. (MIRA 18:2)

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Stock dyeing of viscose fibers. Khim. volok. no.3:58 '65. (MIRA 18:7)

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Grain cleaning in the electric field. Mekh.i elek.sots. sel'-  
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1. Chelyabinskiy institut mekhanizatsii i elektrifikatsii  
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(Grain--Cleaning)

POTANINA, N.D.; SHMIGEL', V.N.

Effect of a high-voltage electrostatic field on the pollen of some fruit crops. Bot.zhur. 45 no.2:266-272 F '60. (MIRA 13:6)

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(Plants, Effect of electricity on)  
(Pollen)  
(Fruit culture)

BASOV, A.M.; SHMIGEL', V.N.

Measuring the specific inductive capacitance of separate grains.  
Izm.tekh. no.10:46-48 0 '61. (MIRA 14:11)  
(Electric measurements)